

CLAIMS:

1. A two-piece solid golf ball made up of a solid core and a cover wherein said solid core is formed from a rubber composition composed of (A) 100 parts by weight of rubber base material containing 60 to 100 wt% of polybutadiene synthesized by using a catalyst of rare earth element and contains no less than 60% of cis-1,4-linkage, (B) 0.1 to 0.8 parts by weight of organic peroxide compound, (C) an unsaturated carboxylic acid and/or a metal salt thereof, (D) an organic sulfur compound, and (E) an inorganic filler and said solid core deforms by 3.0 to 5.5 mm under a load of 980 N (100 kgf) and has a diameter of 37 to 42 mm, and said cover is formed mainly from (F) a thermoplastic polyurethane material and has a thickness of 0.5 to 2.5 mm and a Shore D hardness of 50 to 70, and said two-piece solid golf ball made up of a solid core and a cover deforms by 3.0 to 5.0 mm under a load of 980 N (100 kgf).
2. The two-piece solid golf ball of claim 1, wherein the polybutadiene is a modified polybutadiene obtained by synthesis with an Nd-based catalyst as the catalyst of rare earth element and subsequent reaction with a terminal modifier.
3. The two-piece solid golf ball of claim 1, wherein the rubber composition is one which is composed of (A) 100 parts by weight of rubber base material containing 60 to 100 wt% of polybutadiene synthesized by using a catalyst of rare earth element and contains no less than 60% of cis-1,4-linkage, (B) more than one kind of organic peroxide compound, (C) 10 to 60 parts by weight of an unsaturated carboxylic acid and/or a metal salt thereof, (D) 0.1 to 5 parts by weight of an organic sulfur compound, and (E) 5 to 80 parts by weight of an inorganic filler.

4. The two-piece solid golf ball of claim 1, wherein the thermoplastic polyurethane material as component (F) is composed of (M) a thermoplastic polyurethane and (N) an isocyanate mixture, said isocyanate mixture as component (N) being composed of (N-1) an isocyanate compound having two or more isocyanate groups as functional groups in one molecule and (N-2) a thermoplastic resin which does not substantially react with said isocyanate groups, with the (N-1) being dispersed in the (N-2).
5. The two-piece solid golf ball of claim 1, wherein the cover has a coating film on the surface thereof, said coating film being formed from a golf ball coating composition containing a hydroxyl group-containing polyester obtained by reaction between a polyhydric alcohol and a polybasic acid and also containing a non-yellowing polyisocyanate, said polyhydric alcohol having at least partly an alicyclic structure in the molecule.
6. The two-piece solid golf ball of claim 1, wherein the cover has a large number of dimples in the surface thereof such that the dimple volume ratio (VR) is 0.70 to 1.00% and the dimple surface area ratio (SR) is 70 to 85%, with VR being defined as the ratio of the sum total of the volumes of individual dimples under the plane surrounded by the periphery of each dimple to the volume of a virtual sphere without dimples in the cover, and SR being defined as the ratio of the sum total of the areas surrounded by the periphery of individual dimples to the surface area of the virtual sphere.